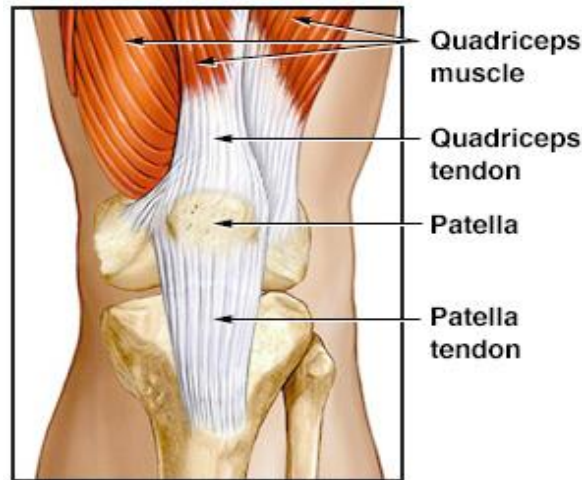




● QUADRICEPS TENDON RUPTURE

ANATOMY & BIOMECHANICS



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Figure 1: Frontal View of Normal Patellar Tendon and Extensor Mechanism.

At the top of the patella, the quadriceps tendon is attached. At the top of the quadriceps tendon is the quadriceps muscle. The quadriceps muscle is the large muscle on the front of the thigh. As the quadriceps muscle contracts (shortens), it pulls on the quadriceps tendon, the patella, the patellar tendon, and the tibia to move the knee from a flexed (bent) position to an extended (straight) position. Conversely, when the quadriceps muscle relaxes, it lengthens. This allows the knee to move from a position of extension (straight) to a position of flexion (bent). (Click [HERE](#) for a computer animation of basic knee motion (mpg file) courtesy of [Rob Kroeger](#).)



Figure 2: Lateral View of a Normal Knee with an Intact Quadriceps Tendon.

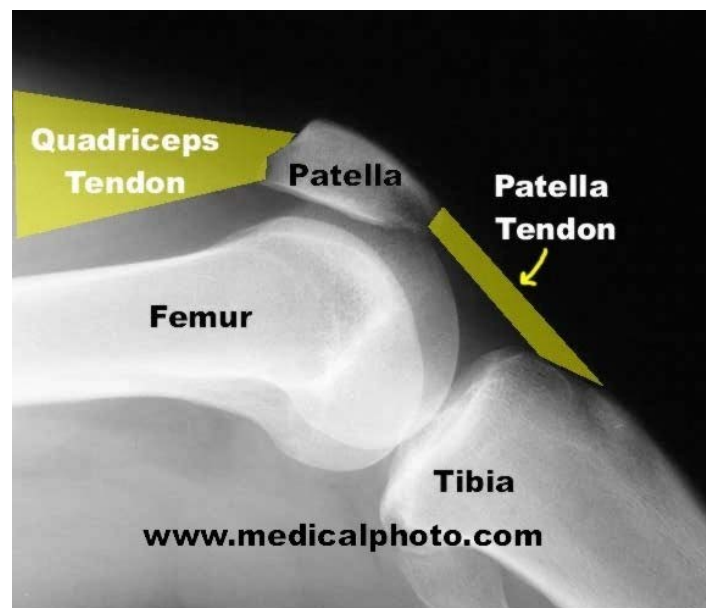


Figure 3: Lateral View of a Normal Knee with an Intact Quadriceps Tendon.

INJURY

When the quadriceps tendon ruptures, the patella loses its anchoring support in the thigh. Without this anchoring effect of the intact quadriceps tendon, the patella tends to move inferiorly (towards the foot). Without the intact quadriceps tendon, the patient is unable to straighten the knee. If a rupture of the quadriceps tendon occurs, and the patient tries to

stand up, the knee will usually buckle and give way because the body is no longer able to hold the knee in a position of extension (straight).

DIAGNOSIS

The examination consists of palpating the quadriceps tendon and the patella. Usually, when the tendon ruptures, the patella moves downwards towards the knee. At the same time, the hole between the ends of the ruptured tendon is palpable on the front of the thigh, just above the knee. X-rays of the knee reveal the abnormal position of the patella, indicating a rupture of the quadriceps tendon.

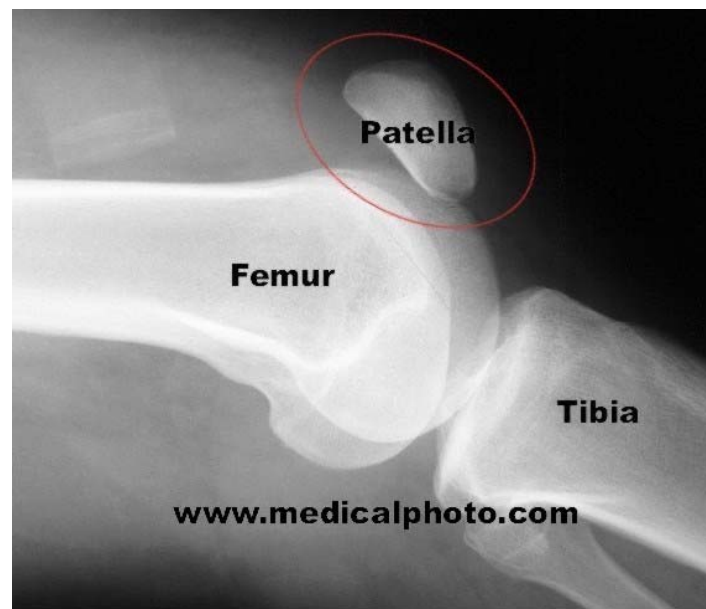


Figure 4: Lateral View of Ruptured Quadriceps Tendon. Notice How the Patella is Abnormally Tilted and Positioned Compared to the Normal Figures 2 & 3.

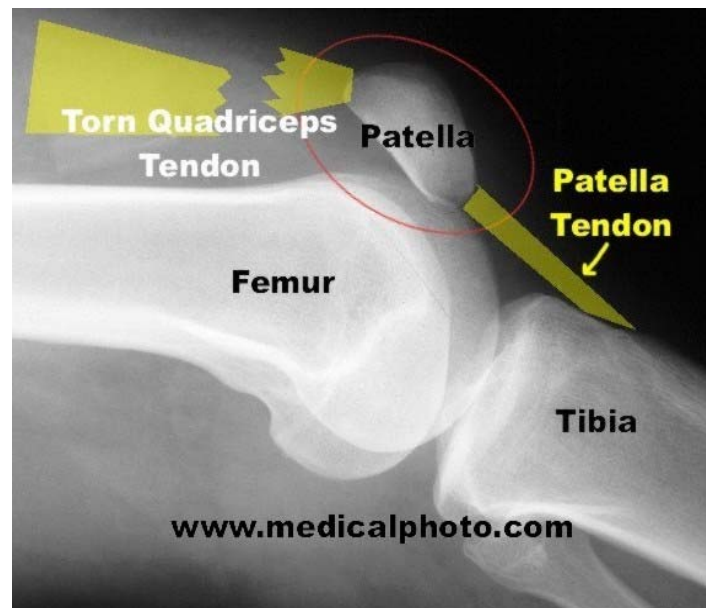


Figure 5: Lateral View of a Ruptured Quadriceps Tendon.

TREATMENT

This is an injury that must be treated surgically. Since the tendon is outside of the joint, it cannot be repaired arthroscopically. Usually, the repair is done as an outpatient or overnight stay.

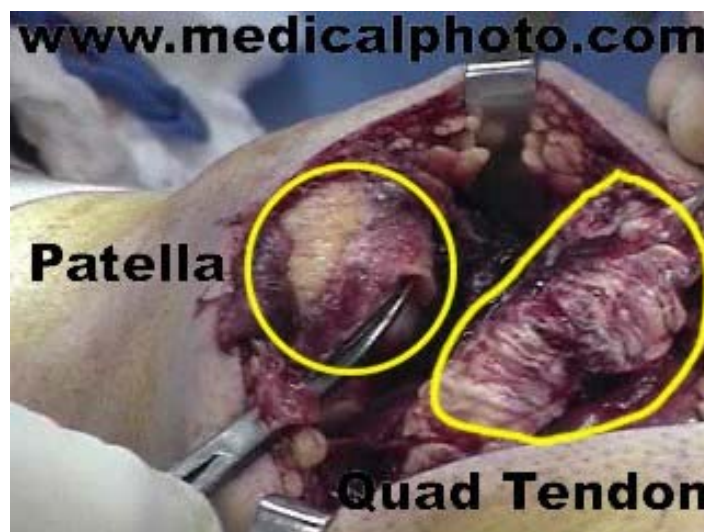


Figure 6: Surgical View of the Patella (Left) and the Ruptured Quadriceps Tendon (Right).

An incision is made on the front of the knee, overlaying the tendon. The site of the tendon rupture is identified. The tendon ends are retracted to allow inspection of the underlying

joint and femur.

The tendon end is identified as is the patella (kneecap). If the tendon is avulsed from (pulled off) the patella, it is then sewn back to the patella. This is usually done by using suture anchors or by passing sutures through the patella and then into the quadriceps tendon.



Figure 6: Surgical View of Repaired Quadriceps Tendon with Sutures Visible.

Afterwards, a cast or brace is often used to protect the repair. The length of time required for casting or bracing is usually a minimum of 6 weeks followed by several weeks of rehabilitation.

PROBLEMS

The usual risks of surgery are involved including: infection, stiffness, suture reaction, failure of satisfactory healing, risks of anesthesia, phlebitis, pulmonary embolus (blood clot in the lungs), and persistent pain or weakness after the injury and repair.

For a REALAUDIO/VIDEO presentation of a ruptured quadriceps tendon:



[QUADRICEPS TENDON RUPTURE](#)

Questions, Comments or Tips on ACL/Knee Injuries: Post Them at: [Orthopedic & Arthroscopic Message Board](#)



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